

Crosswalk Directions:							
2007 MLR to 1997 MLR							
1. Use a Y (yes), an N (no), or a P (partially) to indicate the extent to which the standard, performance indicator, or descriptor of the 2007 MLR can be found in the 1997 MLR. If you indicate that the standard or performance indicator is partially found, please explain in the cell of the spreadsheet. If you answer "no", please respond only to questions 6, 8, and 9.							
2. Use a Y (yes), an N (no), or a P (partially) to indicate the extent to which the concept/idea of the 2007 MLR standard, performance indicator, or descriptor can be found in the 1997 MLR. If you indicate that the idea/concept is partially found, please explain in the cell of the spreadsheet.							
3. Use a Y (yes), an N (no), or a P (partially) to indicate the extent to which whether the wording of the 2007 MLR standard, performance indicator, or descriptor can be found in the 1997 MLR. If you indicate that the wording is partially found, please explain in the cell of the spreadsheet.							
4. Indicate where the standard, performance indicator, or descriptor of the 2007 MLR can be found in the standards or performance indicators of the 1997 MLR. For example, one might indicate A (standard A), A1 (standard A, performance indicator 1), or A1, 2 (standard A, performance indicators 1 and 2).							
5. Indicate with a Y (yes) or an N (no) whether the performance indicator of the 2007 MLR can be found at the same grade span in the 1997 MLR. If "no", indicate the grade span where the performance indicator is found in the 1997 MLR. As an example, a performance indicator found in 6-8 in the 2007 should be considered to be at a different grade span if it is found at 5-8 in the 1997 MLR.							
6. Indicate with a 1, 2, 3, 4, 5 or 6 the level of Bloom's Taxonomy that best represents the cognitive demand of the 2007 MLR. Where more than one level of cognitive demand is indicated please use more than one designation. Please use the attached copy of Bloom to guide your decision about the cognitive demand.							
7. Indicate with a 1, 2, 3, 4, 5 or 6 the level of Bloom's Taxonomy that best represents the cognitive demand of the 1997 MLR. Where more than one level of cognitive demand is indicated please use more than one designation. Please use the attached copy of Bloom to guide your decision about the cognitive demand.							

Mathematics CROSSWALK: 2007 MLR to 1997 MLR	CONTINUITY				Is it at the same grade span or grade level?	At what level of Bloom's taxonomy is the COGNITIVE DEMAND in the 1997 MLR?	At what level of Bloom's taxonomy is the COGNITIVE DEMAND in the 2007 MLR?
	Is it in the 1997 standards?	Is the CONCEPT/IDEA the same?	Is the WORDING the same?	WHERE is it found? (Standard, PI)			
<p>A. <u>NUMBER</u>: Students use numbers in everyday and mathematical contexts to quantify or describe phenomena, develop concepts of operations with different types of numbers, use the structure and properties of numbers with operations to solve problems, and perform mathematical computations. Students develop number sense related to magnitude, estimation, and the effects of mathematical operations on different types of numbers. It is expected that students use numbers flexibly, using forms of numbers that best match a situation. Students compute efficiently and accurately. Estimation should always be used when computing with numbers or solving problems.</p>							
WHOLE NUMBER							
PK-2 PERFORMANCE INDICATOR							
1 Students understand and use number notation and place value to 1000 in numerals.	Y	N, "understand" is broader	N	PK2.A3	Y	2,3	2,3,4
a. Read and write numbers to 1000 using numerals.	Y	Y	N	PK2.A3	Y	2,3	2,3
b. Recognize the place values of numbers (hundreds, tens and ones).	Y	Y	N	PK2.A3	Y	2,3	2
c. Compare and order 1, 2, and 3-digit numbers.	Y	Y	N	PK2.A3	Y	2,3	2,3
2 Students understand and use procedures to add and subtract whole numbers with one and two digits.	Y	Y	N	PK2.B2,3	Y	3	2,3,4
a. Use and explain multiple strategies for computation.	Y	Y	N	PK2.B3	Y	3	3,4
b. Use an operation appropriate to a given situation.	Y	Y	N	PK2.B2	Y	3	3

Grade 3 PERFORMANCE INDICATOR							
1 Students understand and use number notation and place value to 10,000 in numerals.	Y	N, "understand" is broader	P, up to 1000000	EA1	span	2,3	2,3,4
a. Read and write numbers up to 10,000 in numerals and words.	Y	Y	P, up to 1000000	EA1	span	2,3	2
b. Recognize the place values of numbers up to 10,000.	Y	Y	P, up to 1000000	EA1	span	2,3	2
c. Compare and order numbers with up to 4 digits.	Y	Y	P, up to 1000000	EA1	span	2,3	3
2 Students understand and use procedures to add and subtract whole numbers with up to four digits.	Y	N, tools, materials and technology missing in 2007, multiple steps not stated, "understand" is broader	N	EB1, EB3, EB4	span	2,3,4	2,3,4
a. Display an understanding of the base ten place value system.	Y	P, tools, materials and technology missing in 2007	N	EB4	span	3	2,3
b. Use an operation appropriate to a given situation.	Y	P, multiple steps not stated	N	EB2	span	3	2, 3
3 Students understand and apply meanings of multiplication and division.	Y	P, tools, materials and technology missing in 2007, multiple steps not stated, N, "understand" is broader	N	EB1, EB3, EB4	span	2,3,4	2,3,4
a. Multiply single-digit numbers and divide using single-digit divisors and up to two-digit dividends.	Y	P, tools, materials and technology missing in 2007	N	EB4	span	3	3
b. Use an operation appropriate to a given situation.	Y	P, multiple steps not stated	N	EB2	span	2,3	2, 3
c. Recognize and use models for multiplication and division situations.	Y	Y	N	EB4	span	3	2,3
d. Use multiple strategies for multiplication and division.	Y	Y	N	EB4	span	3	3
Grade 4 PERFORMANCE INDICATOR							
1 Students understand and use number notation and place value to 100,000.	Y	P, 1997 up to 1000000, N, "understand" is broader	P, up to 1000000	EA1	span	2,3	2,3,4

a. Read and write numbers up to 100,000 in numerals and words.	Y	P, 1997 up to 1000000	P, up to 1000000	EA1	span	2,3	2,3,4
b. Recognize the place value of numbers to 100,000.	Y	P, 1997 up to 1000000	P, up to 1000000	EA1	span	2,3	2,3,4
c. Compare and order numbers with up to 5 digits.	Y	P, 1997 up to 1000000	P, up to 1000000	EA1	span	2,3	2,3,4
d. Round numbers to the nearest 100 or 1000.	N						3
2 Students understand and use the concepts of factor and multiple.	Y	N, "understand" is broader	N	MA3	no	3	2,3,4
a. Determine if a single-digit number is a factor of a given whole number.	Y	Y	N	MA3	no	3	3
b. Determine if a whole number is a multiple of a given single digit number.	Y	Y	N	MA3	no	3	3
c. List the first 10 multiples of a given number.	Y	Y	N	MA3	no	3	3
3 Students understand and use procedures to multiply and divide whole numbers by two-digit numbers.	Y	N, tools, materials and technology missing in 2007, multiple steps not stated, "understand" is broader	N	EB1, EB3, EB4	span	2,3,4	2,3,4
a. Multiply up to four-digit numbers by a single-digit number.	Y	P, tools, materials and technology missing in 2007	N	EB4	span	3	3
b. Multiply three-digit numbers by two-digit numbers.	Y	P, tools, materials and technology missing in 2007	N	EB4	span	3	3
c. Divide whole numbers up to four digits by a single digit number and by ten.	Y	P, tools, materials and technology missing in 2007	N	EB4	span	3	3
Grade 5 PERFORMANCE INDICATOR							
1 Students understand and use number notation to 10 million in numerals and words.	P, 1997 up to 1 million	P	N	EA1	N	2,3	2,3,4
a. Read and write numbers to 10 million in numerals.	P, 1997 up to 1 million	P	N	EA1	N	2,3	2
b. Round numbers to the place value appropriate for given contexts.	N						3
c. Compare and order numbers up to 10 million.	P, 1997 up to 1 million	P	N	EA1	N	2,3	2,3

2 Students multiply and divide numbers up to four digits by numbers up to 2 digits, and by tens, hundreds, and thousands and interpret any remainders.	Y	Y	N, combined with many other number types	MB1	span	3,4	2,3,4
3 Students solve problems requiring multiple operations – addition, subtraction, multiplication and division and use the conventions of order of operations (no exponents expected).	Y	Y	N, combined with many other number types	MB1	span	3,4	3
Grade 6 PERFORMANCE INDICATOR							
1 Students use factors and multiples.	Y	Y	N	MA3	span	3	3
a. Identify prime numbers and composite numbers and use their properties to solve problems.	Y	Y	N	MA3	span	3	3
b. Use the property that every integer greater than 1 can be written as a product of prime factors.	Y	Y	N	MA3	span	3	3
c. Interpret and use exponential notation as repeated multiplication.	Y	Y	N	MA1	span	3	2,3
d. Find the least common multiple and greatest common factor of two numbers.	Y	Y	N	MA3	span	3	3
Grade 7 PERFORMANCE INDICATOR							
No performance indicator.							
It is expected that students continue to use prior concepts and skills in new and familiar contexts.							
Grade 8 PERFORMANCE INDICATOR							
No performance indicator.							
It is expected that students continue to use prior concepts and skills in new and familiar contexts.							
9-Diploma PERFORMANCE INDICATOR							
No performance indicator.							
It is expected that students continue to use prior concepts and skills in new and familiar contexts.							
RATIONAL NUMBER							
PK-2 PERFORMANCE INDICATOR							
3 Students recognize unit fractions including $\frac{1}{2}$, $\frac{1}{4}$, and $\frac{1}{3}$.	Y	Y	N	EA2	N	2,3	2
Grade 3 PERFORMANCE INDICATOR							
4 Students recognize, name, compare, illustrate and use simple fractions.	Y	Y, no classify	N	EA2	span	2,3	2,3

a. Recognize and name fractions with denominators from 2-10.	Y	Y	N	EA2	span	2,3	2
b. Recognize and name parts of a whole.	Y	Y	N	EA2	span	2,3	2
c. Compare and order fractions with like numerators or with like denominators.	Y	Y	N	EA2	span	2,3	3
Grade 4 PERFORMANCE INDICATOR							
4 Students understand, name, compare, illustrate, combine and use fractions.	Y	P, no classify, no limits on size of denom	N	EA2, EB2, MA1, MB1	N	2,3	2,3, 4
a. Add and subtract fractions with like denominators and use repeated addition to multiply a unit fraction by a whole number.	Y	Y	N	EB2, MB1	N	3	3
b. List equivalent fractions.	Y	Y	N	EA2, MA1	N	3	3
c. Represent fractions greater than one as mixed numbers and mixed numbers as fractions.	Y	Y	N	MA1	N	3	3
5 Students understand and use number notation and place value in numbers with two decimal places in real world contexts including money.	Y	Y	N, no limit on context, precision, includes integers	EA3, MA1, MB1	N	2,3,4	2,3,4
a. Compare, order, read, round and interpret decimals with up to two decimal places.	Y	Y	N	EA3, MA1	N	2,3	2,3
b. Add and subtract decimals with up to two decimal places.	Y	Y	N	MB1	N	3,4	3
c. Multiply and divide decimals with up to two decimal places by a 1- digit whole number.	Y	Y	N	MB1	N	3,4	3
d. Connect equivalent decimals and fractions for 1/10s, 1/4s and 1/2s in meaningful contexts.	Y	Y	N	MA1	N	3	2,3
Grade 5 PERFORMANCE INDICATOR							
4 Students understand, name, compare, illustrate, compute with and use fractions.	Y	Y	N	MA1, MB1	span	3,4	2,3,4
a. Add and subtract fractions with unlike denominators.	Y	Y	N	MB1	span	3,4	3
b. Multiply a fraction by a whole number.	Y	Y	N	MB1	span	3,4	3
5 Students understand and use number notation and place value in numbers with three decimal places.	Y	Y	N	MA1, MB1	span	3,4	2,3,4
a. Compare, order, read, round and interpret decimals with up to three decimal places.	Y	Y	N	MA1	span	3	2,3,4
b. Add and subtract decimals with up to three decimal places.	Y	Y	N	MB1	span	3,4	3
c. Multiply and divide decimals with up to three decimals places by a 2-digit whole number.	Y	Y	N	MB1	span	3,4	3

d. Develop the concept of a fraction as division through expressing a fraction with denominators of 2, 4,5,10, as a decimal and the decimal as a fraction.	Y	Y	N	MA1	span	3	3
6 Students understand concepts of positive and negative integers.	Y	Y	N	EA2, MA1, MB1	N	2,3	2,3,4
a. Place positive and negative integers on a number line or scale.	Y	Y	N	MA1	span	3	3
b. Compare and order positive and negative integers.	Y	Y	N	MA1	span	3	3
c. Find the distance between two integers in a context.	Y	Y	N	MB1	span	3,4	3
Grade 6 PERFORMANCE INDICATOR							
2 Students express fractions greater than 0 as decimals and compare positive fractions and decimals numbers and place them on the number line.	Y	Y	N	MA1	span	3	3
3 Students add, subtract, and multiply, and divide numbers expressed as fractions and as decimals including mixed numbers.	Y	Y	N	MB1	span	3,4	3
4 Students understand how to express relative quantities as percentages and as decimals and fractions.	Y	Y	N	MA1 MA3	span	3	2,3,4
a. Use ratios to describe relationships between quantities.	Y	Y	N	MA1 MA3	span	3	3
b. Use decimals, fractions and percentages to express relative quantities.	Y	Y	N	MA1 MA3	span	3	3
c. Interpret relative quantities expressed as decimals, fractions and percentages.	Y	Y	N	MA1 MA3	span	3	2,3
5 Students multiply and divide decimals with up to 3-decimal places by tens, hundreds, and thousands.	Y	Y	N	MB1	span	3,4	3
Grade 7 PERFORMANCE INDICATOR							
1 Students use negative and positive rational numbers expressed as integers, fractions and decimals.	Y	Y	N	MA1	span	3	3
a. Recognize rational numbers as quotients of integers with a non-zero denominator and that rational numbers can be negative or positive.	Y	Y	N	MA1	span	3	2
b. Compare signed rational numbers and place them on the number line.	Y	Y	N	MA1	span	3	3

2 Students compute with signed rational numbers.	Y	Y	N	MB1	span	3,4	3
a. Use and interpret exponents.	Y	Y	N	MB1	span	3,4	3
b. Follow conventions of order of operations including exponents.	Y	Y	N	MB1	span	3,4	3
3 Students understand that when the ratio of two varying quantities is constant, the two quantities are in direct proportion.	Y	Y	N	MA3,MB2	span	2,3,6	2,3,4
a. Use ratios to compare quantities and use comparison to solve problems.	Y	Y	N	MA3	span	3	2,3,4
b. Identify proportional relationships.	Y	Y	N	MA3	span	3	2,3,4
c. Use proportions to solve problems.	Y	Y	N	MA3,MB2	span	2,3,6	3,4
4 Students interpret and use percents to solve problems.	Y	Y	N	MA3,MB2	span	2,3,6	3,4
a. Use percents when comparing fractional parts of sets of unequal size.	Y	Y	N	MA3	span	3	3
b. Solve practical problems involving percents.	Y	Y	N	MA3, MB2	span	2,3,6	3
Grade 8 PERFORMANCE INDICATOR							
1 Students express or interpret numbers using scientific notation from real-life contexts.	Y	Y	N	MA1	span	3	2,3
a. Use positive and negative integer exponents for powers of ten.	Y	Y	N	MA1	span	3	2,3
b. Convert between standard and scientific notation forms and compare the relative size of numbers including the interpretation of numbers as displayed on calculators and computers.	Y	Y	N	MA1	span	3	2,3
9-Diploma PERFORMANCE INDICATOR							
No performance indicator.							
It is expected that students continue to use prior concepts and skills in new and familiar contexts.							
REAL NUMBERS							
PK-2 PERFORMANCE INDICATOR							
No performance indicator.							
Students are expected to use only rational numbers at this level.							
Grade 3 PERFORMANCE INDICATOR							
No performance indicator.							

Students are expected to use only rational numbers at this level.							
Grade 4 PERFORMANCE INDICATOR							
No performance indicator.							
Students are expected to use only rational numbers at this level.							
Grade 5 PERFORMANCE INDICATOR							
No performance indicator.							
Students are expected to use only rational numbers at this level.							
Grade 6 PERFORMANCE INDICATOR							
No performance indicator.							
At this level students use rational numbers including rational approximations for pi or square roots.							
Grade 7 PERFORMANCE INDICATOR							
No performance indicator.							
At this level students use rational numbers including rational approximations for pi or square roots.							
Grade 8 PERFORMANCE INDICATOR							
1 Students understand the set of real numbers as containing the rational numbers and the irrational numbers.	Y	Y	N	SA1, SA2,SB1	N	2, 3, 6	2,3,4
a. Know that there are real numbers that are not rational numbers.	Y	Y	N	SA1, SA2	N	2	2
b. Know some common examples of irrational numbers such as π or those arising from square roots.	Y	Y	N	SA1, SA2	N	2	2
c. Use square roots. Be able to estimate the value of the square roots of whole numbers and place them on the number line.	Y	Y	N	SA1, SA2,SB1	N	2, 3, 6	2,3
9-Diploma PERFORMANCE INDICATOR							
1 Students know how to represent and use real numbers.	Y	Y	N	SA1, SA2, SB1	Y	2, 3, 6	2,3
a. Use the concept of n^{th} root.	Y	Y	N	SA1	Y	2	3
b. Estimate the value of roots and use technology to approximate them.	Y	Y	N	SA1	Y	2	3
c. Compute using laws of exponents.	Y	Y	N	SB1	Y	2,3,6	3

d. Multiply and divide numbers expressed in scientific notation.	Y	Y	N	SB1	Y	2,3,6	3
e. Understand that some quadratic equations do not have real solutions and that the set of real numbers can be extended to allow for solutions to these equations.	Y	Y	N	SA2	Y	2	2,3,4
B. DATA: Students make measurements and collect, display, evaluate, analyze and compute with data to describe or model phenomena and to make decisions based on data. Students compute statistics to summarize data sets and use concepts of probability to make predictions and describe the uncertainty inherent in data collection and measurement.							
MEASUREMENT AND APPROXIMATION							
PK-2 PERFORMANCE INDICATOR							
1 Students understand and use units of time, temperature, and money.	Y	Y	N, types of measures (geometric & other) separate	PKB2, PKF1, PKF2, PKF3	Y	1,2,3	2,3,4
a. Apply and use sequences of hours in a day, days in a week and months in a year.	Y	Y	N	PKF1	Y	3	3
b. Tell time to the hour and half hour.	Y	Y	N	PKF1	Y	3	2
c. Identify and give the value of different coins.	Y	Y	N	PKF2	Y	1	1
d. Find the total value of collections of coins up to \$1.00.	Y	Y	N	PKB2	Y	3	3
Grade 3 PERFORMANCE INDICATOR							
1 Students understand and use measurement of time and temperature.	Y	Y	N, types of measures (geometric & other) separate	EF1,EF2	span	2,3,6	2,3,4
a. Select appropriate tools and units.	Y	Y	N	EF2	span	2	2
b. Solve and justify problems with these measures.	Y	Y	N	EF1	span	3,6	3,6
Grade 4 PERFORMANCE INDICATOR							
1 Students understand and use measurement of time, capacity and temperature.	Y	Y	N, types of measures (geometric & other) separate	EF1,EF2	span	2,3,6	2,3,4

a. Select appropriate tools and units for these measures.	Y	Y	N	EF2	span	2	2
b. Solve and justify problems with these measures.	Y	Y	N	EF1	span	3,6	3,6
Grade 5 PERFORMANCE INDICATOR							
1 Students understand and use measures of elapsed time, temperature, capacity, mass and weight.	Y	Y	N, types of measures (geometric & other) separate	EF1,EF2	no	2,3,6	2,3,4
a. Select appropriate tools and units mass in grams, weight in pounds.	Y	Y	N	EF2	no	2	2
b. Solve and justify problems with these measures.	Y	Y	N	EF1	no	3,6	3,6
Grade 6 PERFORMANCE INDICATOR							
1 Students convert within measurement systems.	Y	Y	N	MF1	span	3	3
a. Solve problems where different units are used within the metric and traditional systems of measurement.	Y	Y	N	MF1	span	3	3
Grade 7 PERFORMANCE INDICATOR							
No performance indicator.							
Although no performance indicators are stated at this level, it is expected that students continue to use prior concepts and skills in new and familiar concepts.							
Grade 8 PERFORMANCE INDICATOR							
1 Students understand and use derived measures (measurements expressed as rates).	Y	Y	N	MF2	span	3,5	2,3,4
a. Calculate measures using multiple attributes including speed (distance per time).	Y	Y	N	MF2	span	3,5	2,3,4
b. Solve for an unknown component of a measure including finding time given average speed and distance.	Y	Y	N	MF2	span	3,5	2,3,4
2 Students convert across measurement systems and within a system for different units in derived measures.	Y	Y	N	MF1, MF2	span	3,5	3
a. Approximate metric and customary equivalents given a conversion factor.	Y	Y	N	MF1	span	3	3
b. Convert derived measures, including feet per second to miles per hour.	Y	Y	N	MF1, MF2	span	3,5	3
9-Diploma PERFORMANCE INDICATOR							

1 Students understand the relationship between precision and accuracy.	P	P, relationship between not specifically stated	N	SF1	Y	3	2,3,4
a. Express answers to a reasonable degree of precision in the context of a given problem.	Y	Y	N	SF1	Y	3	3
b. Represent an approximate measurement using appropriate numbers of significant figures.	weak	weak	N	SF1	Y	3	3
c. Know that most measurements are approximations and explain why it is useful to take the mean of repeated measurements.	P	P, repeated not included	N	SF1	Y	3	2
DATA ANALYSIS							
PK-2 PERFORMANCE INDICATOR							
2 Students read, construct and interpret picture graphs.	Y	Y	no, type not specified	PKC1, PKC2	Y	3,4	3,4
Grade 3 PERFORMANCE INDICATOR							
2 Students read, construct and interpret bar graphs.	Y	Y	N, type not specified	EC1, EC2, EK1	span	2,3,4	3,4
Grade 4 PERFORMANCE INDICATOR							
2 Students collect and represent data in tables, line plots, and bar graphs, and read and interpret these types of data displays.	Y	Y	N, type not specified	EC1, EC2, EK1	span	2,3,4	3,4
Grade 5 PERFORMANCE INDICATOR							
2 Students read, construct and interpret line graphs.	Y	Y	N, type not specified, critique of others not included	MK2	span	3,4,5,6	3,4
3 Students find and use median, mode, and range for a set of data.	Y	Y	N, span includes mean	MC1	span	3,4	3
Grade 6 PERFORMANCE INDICATOR							
2 Students read and interpret pie charts.	Y	Y	N, type not specified, critique of others not included, no create	MK2	span	3,4,5,6	3,4

3 Students find and compare the mean, median, mode and range for sets of data.	Y	Y	N, span includes mean	MC1	span	3,4	3
Grade 7 PERFORMANCE INDICATOR							
1 Students use graphs and charts to represent, organize, interpret, and draw inferences from data.	Y	Y	N, type not specified, critique of others not included	MK2	span	3,4,5,6	3,4
a. Create tables, pictograms, bar graphs, line graphs, pie charts, stem and leaf plots, box and whiskers plots, and histograms using pencil and paper and electronic technologies.	Y	Y	N	MK2	span	3,4,5,6	3
b. Draw conclusions based on graphs and charts including tables, pictograms, bar graphs, line graphs, pie charts, stem and leaf plots, box and whiskers plots, and histograms.	Y	Y	N	MK2	span	3,4,5,6	3,4
Grade 8 PERFORMANCE INDICATOR							
3 Students use the mean, median, mode, range, and quartiles to solve problems involving raw data and information from data displays.	P, quartiles added in 2007	P	N	MC1	span	3,4	3
9-Diploma PERFORMANCE INDICATOR							
2 Students understand correlation and cause and effect.	Y	Y	N	SC3	Y	2,4	2,3,4
a. Recognize when correlation has been confused with cause and effect.	Y	Y	N	SC3	Y	2,4	2,4
b. Create and interpret scatter plots and estimate correlation and lines of best fit.	Y	Y	N	SC3,	Y	2,4	3
c. Recognize positive and negative correlations based on data from a table or scatter plot.	Y	Y	N	SC3	Y	2,4	2
d. Estimate the strength of correlation based upon a scatter plot.	Y	Y	N	SC3	Y	2,4	3
3 Students understand and know how to describe distributions and find and use descriptive statistics for a set of data.	P, 2007 has quartiles and descriptions of distributions	P	N	SC2,SC3	Y	2,4	2,3,4
a. Find and apply range, quartiles, mean absolute deviation, and standard deviation (with technology) of a set of data.	P, quartiles, MAD added	P	N	SC3	Y	4	3
b. Interpret, give examples of and describe key differences between different types of distributions: uniform, normal and skewed.	P, describes distributions	P	N	SC2	Y	4	2,4

c. For the sample mean of normal distributions, use the standard deviation for a group of observations to establish 90%, 95%, or 99% confidence intervals.	N	-----	-----	-----	-----	-----	3
4 Students understand that the purpose of random sampling is to reduce bias when creating a representative sample for a set of data.	P, application added	P	N	SC4	Y	2	2,3,4
a. Describe and account for the difference between sample statistics and statistics describing the distribution of the entire population.	N	-----	-----	-----	-----	-----	2, 3
b. Recognize that sample statistics produce estimates for the distribution of an entire population, and recognize that larger sample sizes will produce more reliable estimates.	Y	Y	N	SC4	Y	2	2
c. Apply methods of creating random samples and recognize possible sources of bias in samples.	N	-----	-----	-----	-----	-----	2,3,4
PROBABILITY							
PK-2 PERFORMANCE INDICATOR							
No performance indicator.							
While students are expected to have experiences with probability in these grades, it is not expected that the knowledge be secure.							
Grade 3 PERFORMANCE INDICATOR							
No performance indicator.							
While students are expected to have experiences with probability in grade 3, it is not expected that the knowledge be secure.							
Grade 4 PERFORMANCE INDICATOR							
No performance indicator.							
While students are expected to have experiences with probability in grade 4, it is not expected that the knowledge be secure.							
Grade 5 PERFORMANCE INDICATOR							
No performance indicator.							
While students are expected to have experiences with probability in grade 5, it is not expected that the knowledge be secure.							
Grade 6 PERFORMANCE INDICATOR							
No performance indicator.							

While students are expected to have experiences with probability in grade 6, it is not expected that the knowledge be secure.							
Grade 7 PERFORMANCE INDICATOR							
2 Students understand and apply concepts of probability to simple events.	Y	Y	N	ED1, ED2, MD1, MD2	N	2,3	2,3,4
a. Describe events as likely or unlikely and discuss the concept of likelihood using such words as certain, equally likely, and impossible.	Y	Y	N	ED2	N	3	3
b. Predict the probability of outcomes of simple experiments and verify predictions using the understanding that the probability of an occurrence is the ratio of the number of actual occurrences to the number of possible occurrences.	Y	Y	N	MD1	span	3	3,4
c. Interpret probabilities between and including zero and one and explain why zero and one are the upper and lower limits for probability values.	Y	Y	N	MD2	span	2	2,3,4
Grade 8 PERFORMANCE INDICATOR							
4 Students understand and apply concepts of probability.	P	P	N	MD1, MD3, MD4	span	3	2,3,4
a. Use appropriate terminology to describe complementary and mutually exclusive events.	N	----	----	----	----	----	2
b. Use an understanding of relative frequency to make and test conjectures about results of experiments and simulations.	Y	Y	N	MD1,MD3	span	3	3,4
c. Compute probabilities for compound events, using such methods as organized lists, tree diagrams, and area models.	Y	Y	N	MD1, MD4	span	3	3
9-Diploma PERFORMANCE INDICATOR							
5 Students understand the relationship of probability to relative frequency and know how to find the probability of compound events.	P, added expected value	P	N	SD1, SD2	Y	3,4	2,3,4
a. Find the expected frequency of an event.	Y	Y	N	SD1, SD2	Y	3,4	3
b. Find the expected value of events.	N	-----	-----	-----	-----	-----	3
c. Find the probability of compound events including independent and dependent events.	Y	Y	N	SD1	Y	3,4	3

C. GEOMETRY: Students use measurement and observation to describe objects based on their sizes and shapes, model or construct two- and three-dimensional objects, solve problems involving geometric properties, compute areas and volumes based on object properties and dimensions, and perform transformations on geometric figures. When making or calculating measures, students use estimation to check the reasonableness of results.							
GEOMETRIC FIGURES							
PK-2 PERFORMANCE INDICATOR							
1 Students recognize, classify and create geometric figures in two and three dimensions.	Y	Y	N, model changed to create	PKE1, PKE2	Y	2,3,4	2,3,4
a. Identify shapes in the physical environment.	Y	Y	N	PKE1	Y	2,3,4	2
b. Classify figures as circles, triangles, and quadrilaterals by focusing on their properties.	Y	Y	N	PKE1	Y	2,3,4	2,3,4
c. Create shapes by using objects to combine and decompose other shapes.	Y	Y	N, no predict	PKE2	Y	3	3
Grade 3 PERFORMANCE INDICATOR							
1 Students identify, describe, and classify familiar two-dimensional shapes.	Y	Y	N	EE1, PKE2	N	2,3,4	2,3,4
a. Describe and classify two-dimensional shapes according to the number of vertices and by number, length and shape of sides.	Y	Y	N	EE1	span	2,3,4	2,3,4
b. Know how to put shapes together and take them apart to form other shapes.	Y	Y	N, no predict	PKE2	N	3	2, 3
c. Identify edges, vertices and right angles in two-dimensional shapes.	Y	Y	N	EE1	span	2,3,4	2
d. Tell whether a given angle is greater or smaller than a right angle.	Y	Y	N	EE1	span	2,3,4	2
Grade 4 PERFORMANCE INDICATOR							
1 Students identify and name angles, lines, relationships between lines, quadrilaterals, and triangles.	Y	Y	N	EE1	span	2,3,	2,3
a. Identify perpendicular and parallel lines and sides.	Y	Y	N	EE1	span	2,3,4	2
b. Identify and sketch the following figures: rectangle, square, parallelogram, rhombus, and trapezoid.	Y	Y	N	EE1	span	2,3,4	2,3
c. Identify and sketch the following triangles: isosceles, equilateral, acute, obtuse and right.	Y	Y	N	EE1	span	2,3,4	2,3

Grade 5 PERFORMANCE INDICATOR							
1 Students identify, describe and classify solid figures.	Y	Y	N, 3D only, no draw	EE1, ME1	N	2,3,4	2,3, 4
a. Identify edges, vertices and faces in three-dimensional figures.	Y	Y	N	ME1	span	2,3	2
b. Describe and classify solid figures according to the number of edges, faces, and vertices as well as the shapes of faces.	Y	Y	N	EE1, ME1	N	2,3,4	2,4
Grade 6 PERFORMANCE INDICATOR							
1 Students represent solid figures in two dimensions.	Y	Y	N, part only	ME1, ME4	span	2,3	3
a. Represent cubes, prisms, and square- or triangular-based pyramids using nets.	Y	Y	N	ME1, ME4	span	2,3	3
b. Recognize and classify solids presented in picture views.	Y	Y	N	ME1	span	2,3	3
c. Sketch 3-D figures.	Y	Y	N	ME1	span	2,3	3
Grade 7 PERFORMANCE INDICATOR							
1 Students understand angle properties of lines in the plane.	Y	Y	N	ME2	span	3,4	2,3,4
a. Identify and name straight angles, angles at a point, and vertical angles and use these to find unknown angles.	Y	Y	N	ME2	span	3,4	2,3
b. Recognize that straight angles add to 180° and angles at a point add to 360°.	Y	Y	N	ME2	span	3,4	2
c. Recognize that vertical angles are equal.	Y	Y	N	ME2	span	3,4	2
Grade 8 PERFORMANCE INDICATOR							
1 Students know and use properties of polygons.	Y	Y	Y	ME2	span	3,4	2,3,4
a. Use the triangle inequality.	Y	Y	N	ME2	span	3,4	3
b. Find the sum of the interior angles of a polygon.	Y	Y	N	ME2	span	3,4	3
c. Use the property that the sum of the exterior angles of a polygon is 360 degrees.	Y	Y	N	ME2	span	3,4	3
2 Students know and use angle properties of parallel lines to solve problems and determine geometric relationships.	Y	Y	N	ME2, SE2	N	3,4,5	2,3,4,5
a. Know and use properties of angles created when parallel lines are cut by a transversal.	Y	Y	N	ME2, SE2	N	3,4,5	2,3,4
b. Use angle properties to determine whether lines are parallel.	Y	Y	N	SE2	N	3,4,5	3,4,5

c. Know and use properties of angles created by parallel lines to determine the angle properties of trapezoids and parallelograms and apply these properties in problem situations.	Y	Y	N	ME2, SE2	N	3,4,5	3,4,5
					N		
3 Students know and use the Pythagorean theorem.	Y	Y	N	SE2	N	3,4,5	2,3
9-Diploma PERFORMANCE INDICATOR							
1 Students justify statements about polygons and solve problems.	Y	Y	N	SE2, SF2	Y	3,4	3,4,5
a. Use the properties of triangles to prove theorems about figures and relationships among figures.	Y	Y	N	SE2	Y	3,4	4,5
b. Solve for missing dimensions based on congruence and similarity.	Y	Y	N	SE2	Y	3,4	3
c. Use the Pythagorean Theorem in situations where right triangles are created by adding segments.	Y	Y	N	SE2	Y	3,4	3, 4
d. Use the distance formula.	Y	Y	N	SE2, SF2	Y	3,4	3
2 Students justify statements about circles and solve problems.	Y	Y	N	SE2	Y	3,4	3,4,5
a. Use the concepts of central and inscribed angles to solve problems and justify statements.	Y	Y	N	SE2	Y	3,4	3,4,5
b. Use the relationships among arc length, circumference and area of circles and sectors to solve problems and justify statements.	Y	Y	N	SE2	Y	3,4	3,4,5
3 Students understand and use basic ideas of trigonometry.	Y	Y	N	SE3	Y	3	2,3,4
a. Identify and find the value of trigonometric ratios for angles in right triangles.	Y	Y	N	SE3	Y	3	2,3
b. Use trigonometry to solve for missing lengths in right triangles.	Y	Y	N	SE3	Y	3	3
c. Use inverse trigonometric functions to find missing angles in right triangles.	Y	Y	N	SE3	Y	3	3
GEOMETRIC MEASUREMENT							
PK-2 PERFORMANCE INDICATOR							
2 Students understand how to measure length and capacity and use appropriate units.	Y	Y	N	PKF1, PKF3	Y	3	2,3,4
a. Measure length and capacity by direct and indirect comparison.	Y	Y	N	PKF1, PKF3	Y	3	3
b. Measure the length and capacity of objects using non-standard units.	Y	Y	N	PKF1, PKF3	Y	3	3

c. Measure the length of objects to whole inches and centimeters.	Y	Y	N	PKF1, PKF3	Y	3	3
Grade 3 PERFORMANCE INDICATOR							
2 Students understand how to find the distance around a figure.	Y	Y	N	EF1	span	3,6	2,3,4
a. Calculate and measure the distance around a figure whose perimeter is comprised of straight edges.	Y	Y	N	EF1	span	3,6	3
Grade 4 PERFORMANCE INDICATOR							
2 Students understand the concept of area of a figure.	Y	Y	N	EF1, EF2	span	2,3,6	2,3,4
a. Find the area of shapes in non-standard units (e.g., estimate the number of whole square units that cover a figure).	Y	Y	N	EF1	span	3,6	3
b. Find the area of a square and a rectangle in standard units.	Y	Y	N	EF1	span	3,6	3
c. Recognize and estimate the relative sizes of 1 square meter and 1 square centimeter and 1 square inch and 1 square foot.	Y	Y	N	EF2, MF3	N	2	2,3
Grade 5 PERFORMANCE INDICATOR							
2 Students find the area of triangles and quadrilaterals.	Y	Y	N	MF3	span	2,3	3
a. Know how to derive and use the formula, $A = (1/2)bh$ for the area of a triangle.	Y	Y	N	MF3	span	2,3	3
b. Find the area of parallelograms.	Y	Y	N	MF3	span	2,3	3
3 Students understand how to find the volume and surface area of rectangular prisms.	Y	Y	N	MF3	span	2,3	3
a. Know how to build solids with unit cubes and find their volume.	Y	Y	N	MF3	span	2,3	3
b. Recognize and estimate the relative sizes of 1 cubic meter and 1 cubic centimeter. Or 1 cubic inch and 1 cubic foot.	Y	Y	N	MF3	span	2,3	3
c. Know how to derive and use the formula (length x width x height) for the volume of a rectangular prism.	Y	Y	N	MF3	span	2,3	2,3
d. Create nets to aid visualization and computation.	N	----	----	----	----	----	3
4 Students understand how to describe position and direction in two dimensions	Y	Y	N	ME3, ME4	span	3	2,3,4
a. Locate points on the Cartesian plane.	Y	Y	N	ME3	span	3	3
b. Determine horizontal and vertical distance on the coordinate plane.	Y	Y	N	ME3	span	3	3

c. Measure angles in degrees.	Y	Y	N	ME4	span	3	3
Grade 6 PERFORMANCE INDICATOR							
2 Students find the perimeters and areas of geometric figures.	Y	Y	N	MF3	span	2,3	3
a. Triangles	Y	Y	N	MF3	span	2,3	3
b. Quadrilaterals	Y	Y	N	MF3	span	2,3	3
c. Circles	Y	Y	N	MF3	span	2,3	3
3 Students find the volume and surface areas of right prisms with bases that are triangles and quadrilaterals.	Y	Y	N	MF3	span	2,3	3
Grade 7 PERFORMANCE INDICATOR							
2 Students solve problems involving perimeter and area.	Y	Y	N	MF3	span	2,3	3
a. Solve problems involving the area and perimeter of regions in the plane bounded by line segments and circular arcs.	Y	Y	N	MF3	span	2,3	3
b. Solve problems involving the area of combined figures	Y	Y	N	MF3	span	2,3	3
Grade 8 PERFORMANCE INDICATOR							
2 Students find the volume and surface area of prisms, pyramids, cylinders, and other figures composed of these solids.	Y	Y	N	MF3	span	2,3	3
a. Apply the understanding that the volume of prisms and cylinders can be found by multiplying the area of a base by the height of the solid.	Y	Y	N	MF3	span	2,3	3
b. Apply the understanding that the volume of pyramids can be found by multiplying the area of a base by $\frac{1}{3}$ the height of the solid.	Y	Y	N	MF3	span	2,3	3
9-Diploma PERFORMANCE INDICATOR							
4 Students find the surface area and volume of 3-D objects.	Y	Y	N	SF2	Y	3,5	3
a. Find the volume and surface area of cones and spheres.	Y	Y	N	SF2	Y	3,5	3
b. Use formulas to determine the effect of changes in linear dimensions on the volume and surface area of similar 3-D figures.	Y	Y	N	SF2	Y	3,5	3,4,5
TRANSFORMATIONS							
PK-2 PERFORMANCE INDICATOR							
No performance indicator.							

While students are expected to have experiences with symmetry, transformations, and congruence in these grades, it is not expected that the knowledge be secure.							
Grade 3 PERFORMANCE INDICATOR							
No performance indicator.							
While students are expected to have experiences with symmetry, transformations and congruency in grade 3, it is not expected that the knowledge be secure.							
Grade 4 PERFORMANCE INDICATOR							
3 Students recognize congruent figures and line symmetry in figures.	Y	Y	N	EE2	span	4	2,3
a. Recognize whether a line is a line of symmetry in a figure.	Y	Y	N	EE2	span	4	2
b. Complete a symmetric figure given a line of symmetry.	Y	Y	N	EE2	span	4	3
c. Recognize congruent figures.	Y	Y	N	EE2	span	4	2
Grade 5 PERFORMANCE INDICATOR							
5 Students reflect, slide and rotate plane figures.	Y	Y	N	EE3	N	3	2,3
a. Identify figures with rotational or line symmetry.	Y	Y	N	EE3	N	3	2
b. Create figures with rotational or line symmetry	Y	Y	N	EE3	N	3	3
c. Slide, rotate or reflect figures to create patterns or demonstrate congruence.	Y	Y	N	EE3	N	3	3
Grade 6 PERFORMANCE INDICATOR							
4 Students understand and use reflections, rotations, and translations to define and identify congruent plane figures.	N	----	----	----	----	----	2,3,4
a. Apply the understanding that if a plane figure can be laid on top of another plane figure by rotations, translations or reflections then the figures are congruent.	N	----	----	----	----	----	3
Grade 7 PERFORMANCE INDICATOR							
5 Students understand how to use proportional relationships to make indirect linear measurements and use scale drawings to make linear measurements.	N	----	----	----	----	----	2,3
Grade 7 PERFORMANCE INDICATOR							

3 Students understand and use the concept of scale drawings to enlarge or reduce two dimensional plane figures.	P	Weak	N	ME2,ME4	span	3	2,3,4
a. Use the concept of scale factors when enlarging or reducing and recognize the invariance of shape.	P	Weak	N	ME4	span	3	2,3
b. Apply the understanding that enlargement or reduction by a scale factor leaves angle measures unchanged.	P	Weak	N	ME4	span	3	2,3,4
c. Identify similar figures and name corresponding parts.	Y	Y	N	ME2	span	3,4	2
Grade 8 PERFORMANCE INDICATOR							
No performance indicator.							
It is expected that students continue to use prior concepts and skills in new and familiar contexts.							
9-Diploma PERFORMANCE INDICATOR							
Although no performance indicators are stated at this level, it is expected that students continue to use prior concepts and skills in new and familiar contexts. It is expected that students continue to use prior concepts and skills in new and familiar contexts. Methods of transformational geometry might also be used in Geometric Figures 9-Diploma performance indicator 1.							
D. <u>ALGEBRA</u>: Students use symbols to represent or model quantities, patterns and relationships and use symbolic manipulation to evaluate expressions and solve equations. Students solve problems using symbols, tables, graphs and verbal rules choosing the most effective representation and converting among representations.							
SYMBOLS AND EXPRESSIONS							
PK-2 PERFORMANCE INDICATOR							
1 Students understand how to represent quantities as simple expressions using addition and subtraction.	Y	Y	N	PKB2, PKB3, PKG3, PKH2	Y	2,3	2,3,4
a. Show that any quantity can be represented by equivalent expressions e.g., $4 + 5 + 1$; $3 + 3 + 3 + 1$; $9 + 1$ each represents the quantity 10.	Y	Y	N	PKB3, PKH2	Y	3	3,4

b. Know that addition is commutative and apply this understanding in computation and problem-solving.	Y	Y	N	PKB3	Y	3	3
c. Know that addition and subtraction are inverse operations and apply this understanding in computation and problem-solving.	Y	Y	N	PKB2	Y	3	3
Grade 3 PERFORMANCE INDICATOR							
1 Students use equivalent expressions to aid computation such as knowing that $43 + 56$ is the same as $40 + 3 + 50 + 6$.	Y	Y	N	PKA1, PKB2	N	2,3	3
Grade 4 PERFORMANCE INDICATOR							
1 Students create and evaluate simple expressions in the context of numbers and operations as described in Standard A: Number for this grade level.	Y	Y	N	EH1	span	3	3
Grade 5 PERFORMANCE INDICATOR							
1 Students create and evaluate simple expressions in the context of numbers and operations as described in Standard A: Number for this grade level.	Y	Y	N	MH1, MK1	span	3	3
Grade 6 PERFORMANCE INDICATOR							
1 Students create and evaluate expressions.	Y	Y	N	MH1, MK1	span	3	3
a. Create and evaluate expressions using whole numbers.	Y	Y	N	MH1, MK1	span	3	3
b. Create and evaluate expressions using positive fractions including decimals.	Y	Y	N	MH1, MK1	span	3	3
Grade 7 PERFORMANCE INDICATOR							
1 Students create and evaluate expressions.	Y	Y	N	MH1, MK1	span	3	3
a. Create and evaluate expressions using integers.	Y	Y	N	MH1, MK1	span	3	3
b. Create and evaluate expressions using rational numbers.	Y	Y	N	MH1, MK1	span	3	3
Grade 8 PERFORMANCE INDICATOR							
1 Students create, evaluate and manipulate expressions.	Y	Y, manipulate weak	N	MH1, MK1,	span	3	3
a. Add and subtract linear expressions.	Y	Weak'	N	MH1	span	3	3
b. Apply the properties of the real number system (e.g., distributive and associative laws) to create equivalent expressions	Y	Y	N	MH1	span	3	3

9-Diploma PERFORMANCE INDICATOR							
1 Students understand and use polynomials, and expressions with rational exponents.	N	-----	-----	-----	-----	-----	2,3,4
a. Simplify expressions with rational exponents.	N	-----	-----	-----	-----	-----	3
b. Add, subtract, multiply, polynomials.	N	-----	-----	-----	-----	-----	3
c. Factor the common term out of polynomial expressions	N	-----	-----	-----	-----	-----	3
d. Divide polynomials by (ax+b)	N	-----	-----	-----	-----	-----	3
EQUATIONS AND INEQUALITIES							
PK-2 PERFORMANCE INDICATOR							
2 Students understand that the equal sign means, "is the same as."	Y	Y	N	PKG2, EH2	N	2,3	2,3,4
a. Identify true and false number sentences.	Y	Y	N	PKG2, EH2	N	2,3	3
b. Describes what makes number sentences true or false and applies this knowledge.	Y	Y	N	PKG2, EH2	N	2,3	2
c. Find solutions for unknowns in simple open number sentences such as $12 = 4 + []$.	Y	Y	N	EH2	N	2,3	3
Grade 3 PERFORMANCE INDICATOR							
2 Students find the unknown in simple equations (or open sentences) in the context of numbers and operations as described in Standard A: Number for this grade level such as:	Y	Y	N	EH2	span	3	3
$3 + 5 = [] + 3$							
$3 + 9 = [] + 10$							
$[] + () = 10$							
Grade 4 PERFORMANCE INDICATOR							
2 Students find the unknown in simple equations in the context of numbers and operations as described in Standard A: Number for this grade level such as:	Y	Y	N	EH2	span	3	3
$3 \cdot b = 12$							
$3 + 4 = x + 5$							
$6 \times 5 = 3 \times []$							
Grade 5 PERFORMANCE INDICATOR							
2 Students find the unknown in simple equations in the context of numbers and operations as described in Standard A: Number for this grade level such as:	Y	Y	Y	MH2, MH6	span	3	3
$39 - k = 39 - 40$							
$78 + b = 57 + 79$							

$30 \times A = 276$							
$(3 + 4) \times 6 = 6 \times []$							
$3 \times 15 = 3 \times (10 + [])$							
Grade 6 PERFORMANCE INDICATOR							
2 Students recognize and solve problems involving linear equations and recognize examples and non-examples of linear equations.	Y	Y	N	MH2, MH3, MH5, MH6	span	2,3,4	2,3, 4
a. Solve equations of the form $ax +/- b = c$ where a, b and c are whole numbers.	Y	Y	N	MH2, MH6	span	3	3
b. Recognize from a table whether a relationship has a constant rate of change.	Y	Y	N	MH3, MH5	span	2,4	3, 4
Grade 7 PERFORMANCE INDICATOR							
2 Students understand and solve problems involving linear equations and know that a linear equation can be written in the form $0 = ax + b$.	Y, equation form weak	Y	N	MH1, MH2, MH6	span	3	3
a. Solve equations of the form $ax + b = c$ where a, b and c are positive rational numbers or positive or negative integers.	Y	Y	N	MH2, MH6	span	3	3
Convert equations to $0 = ax + b$ form.	N	-----	-----	-----	-----	-----	3
Grade 8 PERFORMANCE INDICATOR							
2 Students understand and solve problems involving linear equations.	Y	Y	N	MH2, MH6, SH1	N	3	2, 3, 4
a. Be able to solve any linear equation including linear equations of the form $ax + b = cx + d$.	Y	Y	N	MH2, MH6	span	3	3
b. Recognize that, in general, linear equations have just one solution—but know also that some linear equations can have no solution and those linear equations that are identities have every value of x as a solution. Otherwise, linear equations have just one solution.	Y	Y	N	MH2, MH6	span	3	2, 3
c. Use graphs to estimate solutions to equations and systems of equations, check algebraic approaches, provide alternative solution paths, and to communicate the solution to a problem.	Y	Y	N	SH1	N	3	3,4
3 Students understand and solve linear inequalities in one unknown.	Y	Y	N	MH5, MH6	span	2,3	2,3,4
a. Represent problem situations as inequalities.	Y	Y	N	MH5, MH6	span	2,3	3
b. Solve linear inequalities.	Y	Y	N	MH6	span	2,3	3
c. Interpret the solutions to linear inequalities.	Y	Y	N	MH5, MH6	span	2,3	2,4

9-Diploma PERFORMANCE INDICATOR							
2 Students solve families of equations and inequalities.	Y	Y	N	SH1, SH3	Y	3	2,3,4
a. Solve systems of linear equations and inequalities in two unknowns and interpret their graphs.	Y	Y	N	SH1, SH3	Y	3	3
b. Solve quadratic equations: graphically, by factoring in cases where factoring is efficient and by applying the quadratic formula.	Y	Y	N	SH1, SH3	Y	3	3
c. Solve simple rational equations similar to	Y	Y	N	SH3	Y	3	3
$\frac{1}{2x+1} = 5$							
d. Solve absolute value equations and inequalities and interpret the results.	Y	Y	N	SH3	Y	3	3
e. Apply the understanding that the solution(s) to equations of the form $f(x) = g(x)$ are the x-value(s) of the point(s) of intersection of the graphs of $f(x)$ and $g(x)$ and common outputs in table of values.	Y	Y	N	SH1	Y	3	3
f. Explain why the coordinates of the point of intersection of the lines represented by a system of equations is its solution and apply this understanding to solving problems.	Y	Y	N	SH1	Y	3	2,4
3 Students understand and apply ideas of logarithms.	P, no solve explicit in 1997	P	N	SG3, SH1	Y	3	2,3,4
a. Use and interpret logarithmic scales.	Y	Y	N	SG3	Y	3	2,3
b. Solve equations in the form of $x = b^y$ using the equivalent form $y = \log_b x$.	Y, weak	weak	N	SH1	Y	3	3
FUNCTIONS AND RELATIONS							
PK-2 PERFORMANCE INDICATOR							
3 Students understand how to create, identify, describe, and extend patterns given a pattern or a rule.	Y	Y	N	PKG1	Y	2,3	2,3,4
a. Describe, extend, and create a repeating pattern.	Y	Y	N	PKG1	Y	2,3	2,3
b. Describe, extend and create growing patterns.	Y	Y	N	PKG1	Y	2,3	2,3
Grade 3 PERFORMANCE INDICATOR							
3 Students understand arithmetic relationships among positive whole numbers.	Y	Y	N, all real # in 1997	EG3, MA2	N	4	2,3,4

a. Use the inverse relationships between addition and subtraction and between multiplication and division and the commutative laws of multiplication and addition to solve problems.	Y, weak	weak	N	EG1	span	3	3
b. Be able to show that for whole numbers subtraction and division are not commutative and show that multiplication and addition are commutative.	N	-----	-----	-----	-----	-----	4,5
4 Students create, describe, explain and extend patterns with numbers and geometric objects.	Y	Y	N	PKG1	N	2,3	2,3
Grade 4 PERFORMANCE INDICATOR							
3 Students use tables, rules, diagrams and patterns to represent the relationship between quantities and to extend sequences.	P, adds diagrams	P	N	EG1, EG2	span	3	3
Grade 5 PERFORMANCE INDICATOR							
3 Students use tables, rules, diagrams, and graphs to represent and analyze the relationship between quantities.	P, adds diagrams	P	N	EG1, EG2, MG1	no	3	3,4
Grade 6 PERFORMANCE INDICATOR							
3 Students use tables, formulas, diagrams, and graphs to analyze relationships between quantities.	P, adds diagrams	P	N	MG1	span	3	3,4
a. Use tables, formulas and graphs to analyze constant difference (additive) relationships.	P, adds diagrams	P	N	MG1	span	3	3,4
b. Use tables, formulas and graphs to analyze constant ratio (multiplicative) relationships.	P, adds diagrams	P	N	MG1	span	3	3,4
Grade 7 PERFORMANCE INDICATOR							
3 Students understand and use directly proportional relationships, $y = kx$.	Y	Y	N, notation	MG1, MH1, MH3, MH4	span	3, 4	2,3,4
a. Recognize directly proportional relationships by information in a table, graph, or formula.	Y	Y	N	MG1, MH1, MH3	span	3,4	2, 3
b. Translate common directly proportional relationships into symbolic statements and graphs.	Y	Y	N	MH1, MH4	span	3	3
c. Interpret the slope and y-intercept of the graph of $y = kx$ in terms of a given context.	Y	Y	N	MH3	span	4	3, 4
Grade 8 PERFORMANCE INDICATOR							

4 Students understand and use the basic properties of linear relationships, $y = kx + b$.	Y	Y	N	MG1, MG2, MH1, MH3	span	3, 4	2, 3, 4
a. Understand that a linear relationship is characterized by a constant rate of change, k .	Y	Y	N	MG2, MH3	span	4	2
b. Understand that the graph of a linear relationship $y = kx + b$ is a line where the slope is k and b is the y-coordinate of the point where the graph crosses the y-axis (i.e., value of y when $x = 0$).	Y	Y	N	MG1, MG2, MH1, MH3	span	4	3, 4
c. Translate common linear phenomena into symbolic statements and graphs and interpret the slope and y-intercept of the graph of $y = kx + b$ in terms of the original situation.	Y	Y	N	MG1, MH1, MH3, MH4	span	4	3, 4
9-Diploma PERFORMANCE INDICATOR							
4 Students understand and interpret the characteristics of functions using graphs, tables and algebraic techniques.	Y	Y	N	SG1, SG2, SG3, SH1, SH2, SH4	Y	3,4	2,3,4
a. Recognize the graphs and sketch graphs of the basic functions	Y	Y	N	SG1, SG3, SH2, SH4	Y	3,4	2,3
$f^n(x) = x$ where $n = 1$ to 3							
$f(x) = ax^2 + bx + c$							
$f(x) = \sqrt{x}$							
$f(x) = x $							
$f(x) = \frac{1}{x}$ and $f(x) = kx + b$.							
b. Use concepts such as domain, range, zeros, intercepts, maximum and minimum values.	Y	Y	N	SG1, SH1, SH4	Y	3, 4	3
c. Use the concepts of average rate of change (table of values) and increasing and decreasing over intervals and use these characteristics to compare functions.	Y	Y	N	SH2		3	2,3,4
5 Students express relationships recursively and use iterative methods to solve problems.	N	-----	-----	-----	-----	-----	2, 3
a. Express the $(n+1)$ st term in terms of the n th term and describe relationships in terms of a starting point and rule followed to transform one term to the next.	N	-----	-----	-----	-----	-----	3
b. Use technology to perform repeated calculations to develop solutions to real life problems involving linear, exponential and other patterns of change.	N	-----	-----	-----	-----	-----	3

Standards, PIs, Descriptors NOT found in 2007 document							
PKA1, PKA2, explicit grouping in PK2.A1, classify in EA1 and EA2, MA2 limited to whole #s, SA1 less emphasis on structure, SA2, PKB1 materials, EB3 not separately stated, EB4 - technology and materials not stated, SB2, PKC2, MC2, MC3 not stated separately, SC1, SC5, PKD1, ED1, PKE2 lost investigate & predict, PKE3, EE2 no experiment, EE4 no seaparte indicator, ME4 construct lost, SE1, SE3 lost circular trig, SF1 no tool use specified in 2007, PKG3 lost geometric, SG4, PKH1, PKH2 "language" lost, SH1 spreadsheets, SH3 "formulate", PKI1, PKI2, EI1, EI2, MI1, SI1, SI2, SI3, SI4, PKJ1, PKJ2, EJ1, MJ1, MJ2, SJ1, PKK1, MK2 analyze other's work, Sk1, SK2							
% increase or decrease # of Standards	(-7), -63%						
11-7=4							
% increase or decrease # of Performance Indicators	0						
117-109 = 8	-8, -7% (but includes separate grades 3-8 instead of 2 spans)						